VitruCare: Using digital health to overcome the bounded willpower of patients with long term conditions

Background: Long term conditions affect 40% of the UK population whilst utilising 70% of the health and social care funding. Digital health has emerged as a solution, to aid patients in self-managing their health and alter unhealthy behaviours. However, for digital health to be effective, the field must have an understanding of what hinders or motivates patient behaviour change. Behavioural economics, as a combination of psychology and economics, can provide this knowledge with relevant concepts, biases and heuristics. One such concept is bounded willpower, which explains why people struggle to make decisions based on their long term interests but are more susceptible to short-term benefits or costs.

Aims: The aim of this research is to explore the concept of bounded willpower in relation to digital health within the UK. The focus is primarily on the product VitruCare and its effectiveness at overcoming the bounded willpower of patients with long term conditions.

Method: VitruCare used feedback, commitment contracts and channel factors to help overcome bounded willpower in an intervention on 144 patients in the Bradford region who were suffering from hypertension. Quantitative variables of patients' weight, blood pressure, GP attendances, A&E attendances, acute admissions and outpatient visits were recorded before and after usage. A paired samples t-test was used to indicate significant differences in these two conditions.

Results: Results indicated significant improvements in weight ($t = 7.377$, $p = 0.000$), systolic ($t = 6.743$, $p = 0.000$) and diastolic ($t = 11.936$, $p = 0.000$) blood pressure, alongside a significant reduction in GP practice visits ($t = 12.643$, $p = 0.000$) and outpatient visits ($t = 5.951$, $p = 0.000$). There were no significant differences in A&E attendances ($t = 1.440$, $p = 0.152$) and acute admissions ($t = 1.029$, $p = 0.305$).

Conclusions: VitruCare's understanding of behavioural economics and the potential psychological pitfalls in the patient decision making process, improved the health of the patients as well as decreased NHS contact hours. It is therefore beneficial to practitioners and academics within digital health to embrace behavioural economics and the psychology behind decision making, especially when encouraging behaviour change in patients suffering from long term conditions.

Key words: Digital health, behavioural economics, bounded willpower, long term conditions